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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/816,558	03/23/2001	Paul Bender	000332	7116

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Qualcomm Incorporated  
Patents Department  
5775 Morehouse Drive  
San Diego, CA 92121-1714

EXAMINER

NGUYEN, HANH N

ART UNIT	PAPER NUMBER
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2662

DATE MAILED: 05/25/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

09/816,558

Applicant(s)

BENDER ET AL.

Examiner

Hanh Nguyen

Art Unit

2662

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on Application filed on 3/3/04.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-24 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-24 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

**Priority under 35 U.S.C. §§ 119 and 120**

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) \_\_\_\_\_.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). \_\_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_.

## DETAILED ACTION

### *Claim Objections*

Claims 1, 7, 22 and 23 are objected to because of the following informalities: It is suggested by examiner to amend "ACK" and NAK" as "acknowledgment " and "negative acknowledgement" respective eventhough they are well-known in the art. Appropriate correction is required.

### *Claim Rejections - 35 USC § 103*

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1-7, 9-19 and 21-23 are rejected under 35 USC 103(a) as being unpatentable over **Walton et al.** (US Pat. No. 6,493,331 B1) in view of **Das et al.** (US Pat. No. 6,721,834 B2).

In claim 1, 2, 7 and 22, **Walton et al.** discloses, in Fig.6, a resource allocation using CDMA (see col.3, line 30) comprising cell 1, cell 2, cell 3 ( one or more transmission sources). Cell 1 is assigned a set of slots 1 through 4. Cell 2 is assigned slots 5 through 8. Cell 3 is assigned slots 9 through 12 (assigning slots to one or more transmission sources). Each cell transmits data on the assigned slots (enabling each transmission source to transmit data on the assigned slots). See col.12, lines 40-55. There are three sets of slots assigned to cells 1, 2, 3 respectively (associated & assigning N phases, where N is greater than one, to one or more

cells). See col.12, lines 44-50. With the above sets of slots assigned to the respective cells 1, 2 & 3, there is no co-channel interference from adjacent cells (reducing interference from cells). See col.12, lines 55-63. **Walton et al.** does not disclose enabling phasing of each assigned slot for receipt of an ACK or NAK prior to a next transmission of that time slot. **Das et al.** teaches in the related art ( col.1, line 50 to col.2, line 15) that a base station transmits data in a time slot N to a receiver at a calculated data rate. The base station waits for a slot offset J ( setting a phase of a slot) to receive an ACK or NAK before transmitting or retransmitting data in a next time slot  $N + \text{offset } J + \text{offset } K$  (enabling phasing of each assigned slot for receipt of an ACK or NAK prior to a next transmission of that time slot). Therefore, it would have been obvious to one ordinary skill in the art use the teaching of **Das et al.** in order to delay a next transmission slot until an ACK or NAK is received from a receiver. The purpose is to ensure all data has been received at the receiver by retransmitting missed data.

In claim 23, **Walton et al.** discloses, in Fig.14, a data processor 1412 that receives and processes the data (a data processor configured to receive and process a data packet). See col.50, lines 61-67. Resource allocation processor 1430 ( a controller) couples to the data processor 1412 (couples to data processor) in order to schedule the requested transmissions, assigns channels to active users and coordinate data transmissions (controller directs transmissions over slots assigned to access point). See col.51, lines 25-35. In accordance with one of the embodiments of the invention, a set of slots assigned to a cell is reserved such that no neighboring cells is allowed to transmit power to the reserved slots (preventing transmission over slots assigned to the access point). See col.13, lines 5-18. **Walton et al.** does not disclose enabling phasing of each assigned slot for receipt of an ACK or NAK prior to a next

transmission of that time slot. **Das et al.** teaches in the related art ( col.1, line 50 to col.2, line 15) that a base station transmits data in a time slot N to a receiver at a calculated data rate. The base station waits for a slot offset J ( setting a phase of a slot) to receive an ACK or NAK before transmitting or retransmitting data in a next time slot  $N + \text{offset J} + \text{offset K}$  (enabling phasing of each assigned slot for receipt of an ACK or NAK prior to a next transmission of that time slot). Therefore, it would have been obvious to one ordinary skill in the art use the teaching of **Das et al.** in order to delay a next transmission slot until an ACK or NAK is received from a receiver. The purpose is to ensure all data has been received at the receiver by retransmitting missed data.

In claim 3, **Walton et al.** discloses, in Fig.6, cells 1, 2 & 3 are assigned sets of slots 1 through 4; slots 5 through 8; and slots 9 through 12 respectively ( staggering data transmission in non-overlapping, time-wise for a particular duration of time). See col.12, lines 45-50.

In claim 5, **Walton et al.** discloses each cell imposes transmission blocking on themselves on certain channels if the channel conditions deteriorate to an unacceptable level (identifying interfering transmission sources contributing to the interference). Each cell measures the performance of poor channels and blocks transmission until the channels improve its communication ( determining interference to achieve for at least one transmission source). See col.13, lines 22-32. When the load in a cell exceeds four users, addition users may be assigned to one slot that may not be orthogonal (the assigning is performed to achieve a particular level of interference for one transmission source). See col.12, lines 60-67.

In claims 6 and 19, **Walton et al.** discloses that a cell requests other cells to reduce or stop their transmission power so that a particular user can be served. Therefore, there must be a control channel over which the requesting cell communicates with other cells.

In claim 9, **Walton et al.** discloses a particular cell is staggered from neighboring cells in reuse pattern to reduce interference (staggering data transmissions from the plurality of cells to reduce interference). See col.3, lines 55-60.

In claims 4, 12 and 13, **Walton et al.** discloses a user having lower data rate may be serviced by a number of available channels whereby a user having higher data rate may be serviced by a reduced number of available channels (the amount of staggering is depending on data rates of data transmission ). See col.29, lines 60-67.

In claim 10, **Walton et al.** discloses cell 1 is assigned a set of slots 1 through 4. Cell 2 is assigned slots 5 through 8. Cell 3 is assigned slots 9 through 12 (assigning each cell to a respective N phase for a particular duration of time). See col.12, lines 45-50.

In claim 11, **Walton et al.** discloses a cell communicates to its neighboring cells a list of channels that are protected/ reserved . The neighboring cells stops transmitting power on these protected channels (sending messages indicative of a particular staggering pattern to be used for transmission data). See col.13, lines 12-18.

In claim 14, the limitation of this claim has been addressed in claim 10.

In claim 15, **Walton et al.** discloses that a cell requests its neighboring cells to stop their transmission so that disadvantaged users can be served. (identifying interfering cells contributing to the excessive interference). The neighboring cells reduces or stops the transmit power on the protected channels (identifying a disadvantaged cell experiencing interference). See col.13, lines 13-25. The interfering cell is assigned to lower priority channels (assigning interfering cell to a different phase). See col.4, lines 60-67.

In claim 16, the limitations of this claim have been addressed in claims 1, 23.

In claim 17, the limitations of this claim have been addressed in claims 1, 23.

In claim 18, the limitation of this claim has been addressed in claim 4.

In claim 21, **Walton et al.** discloses a resource allocation using CDMA channels (communication is a CDMA system). See col.3, lines 30-32.

Claims 8 and 20 are rejected under 35 USC 103(a) as being unpatentable over **Walton et al.** (US Pat. No. 6,493,331 B1).

In claims 8 and 20, **Walton et al.** only discloses three 4-slot sets (N is three) assigned to cells 1, 2 and 3 respectively. However, it is a well-known skill in the art to assign any set number of slots to cells depending on how many cells there are in wireless communication. Therefore, it would have been obvious to implement any set number of slots in **Walton et al.** in order to achieve the required four sets of slots, each may be assigned to a cell respectively. The motivation is to prevent interference by blocking transmission from neighboring cells.

In claim 20, **Walton et al.** does not disclose data on control channel is identified by a preamble. It is a well-known skill in the art for an indication of control channel identified by a preamble. Therefore, it would have been obvious in **Walton et al.** to have a preamble in a control packet so that an identification of control channel is made.

Claim 24 is rejected under 35 USC 103(a) as being unpatentable over **Walton et al.** (US Pat. No. 6,493,331 B1) in view of **Das et al.** (US Pat. No. 6,721,834 B2) in view of **Blanchette et al.** (US Pat. No. 6,094,429).

In claim 24, **Walton et al.** does not disclose the data packet includes an offset field for a slot assigned for transmission. **Blanchette et al.** discloses, in Fig.4, a slot format 400 comprising an offset field 410. The offset field defines the first slot number 404 which begins a next occurring packet data frame for the mobile station (the data packet includes an offset field for a slot assigned for transmission). See col.5, lines 20-28. Therefore, it would have been obvious having the offset field in data packet transmission in **Walton et al.** so that the received data packet can be assigned to slots.

#### ***Response to Arguments***

Applicant's arguments with respect to claims 1-24 have been considered but are moot in view of the new ground(s) of rejection.

#### ***Conclusion***

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event,



however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Chawla et al. (US Pat. No. 6,243,371 B1) discloses Method and Apparatus for Interference Avoidance in a Wireless Communication System.

Menzel (US Pat. No. 6,504,837 B1) discloses Method and System for Data Transmission with a Macrodiversity Reception.

Avidor et al. (US Pat. No. 6,144,652) discloses TDM-Based Fixed Wireless Loop System.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Hanh Nguyen whose telephone number is 703 306-5445. The examiner can normally be reached on Monday-Friday from 8AM to 5PM. The examiner can also be reached on alternate

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Hassan Kizou, can be reached on 703 306-4744. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR

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system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Hanh Nguyen

A handwritten signature in black ink, appearing to read 'Hanh Nguyen', written over the printed name and date.

May 19, 2004